14. The computer program product of claim **13**, wherein the method performed by the processing circuitry when the instructions are executed further comprises:

selectively allocating data storage space for storing data storage metadata at least in part by selecting available data storage space located in the non-volatile data storage devices contained in the first storage enclosure over available data storage space located in non-volatile data storage devices contained in the secondary storage enclosure.

15. The computer program product of claim **14**, wherein the method performed by the processing circuitry when the instructions are executed further comprises:

moving host data from the non-volatile data storage devices contained in the first storage enclosure to non-volatile data storage devices contained in the secondary storage enclosure in order to create data storage space available for allocation from non-volatile data storage devices contained in the first storage enclosure to store the data storage metadata.

16. The computer program product of claim **15**, wherein the method performed by the processing circuitry when the instructions are executed further comprises:

identifying unused data storage space in the non-volatile data storage devices contained in the first storage enclosure in order to create data storage space available for allocation from the non-volatile data storage devices contained in the first storage enclosure to store the data storage metadata.

17. The computer program product of claim **16**, wherein the method performed by the processing circuitry when the instructions are executed further comprises:

evenly distributing the data storage metadata across the non-volatile data storage devices contained in the first storage enclosure such that each non-volatile data storage device contained in the first storage enclosure stores the same amount of data storage metadata.

18. The computer program product of claim **17**, wherein the data storage metadata includes mapping metadata that identifies the locations of blocks of physical non-volatile storage that are mapped to corresponding portions of a logical address space of a logical volume that is accessed by host I/O requests received and processed by the data storage system.

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